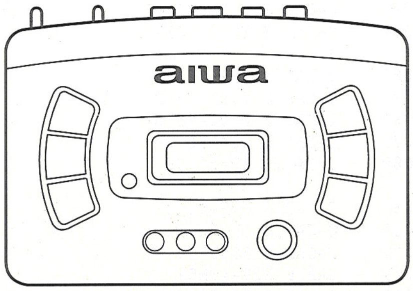
HS-TX646
HS-TX647



STEREO RADIO CASSETTE PLAYER

- BASIC TAPE MECHANISM : OZM – 2N
- TYPE: YU, YK, YZ, Y (HS – TX646)
  YU (HS – TX647)

SERVICE MANUAL

REVISION PUBLISHING

SPECIFICATIONS

Frequency range:	AM :	531/530 - 1,602/1,710 kHz (9/10 kHz step) 531 - 1,629 kHz (9 kHz step)
	FM :	87.5/87.5 - 108/108.1 MHz (50/200 kHz step) 76 - 108 MHz (100 kHz step)
Maximum output :		15 mW + 15 mW (EIAJ/32Ω) 20 mW + 20 mW (EIAJ/16Ω)
Power source :		Battery DC 3V, R6 (size AA) x 2 Domestic AC power (using optional AC adaptor: AIWA AC-620/AC-300)
Battery life :		Using manganese batteries, R6P (size AA) Approx. 4 hours (EIAJ, 1mW output) Using alkaline batteries, LR6 (size AA) Approx. 6 hours (EIAJ, 1mW output)
Maximum dimensions (W x H x D) :		115.3 x 89.7 x 38.4mm ($4\frac{5}{8} \times 3\frac{5}{8} \times 1\frac{9}{16}$ inches)
Weight :		Approx. 216.8g, 0.48lb (including batteries)

- Design and specifications are subject to change without notice.
- Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
  "DOLBY" and the double-D symbol ▯▯ are trademarks of Dolby Laboratories Licensing Corporation.

- This Service Manual is the "Revision Publishing" and replaces "Simple Manual" (S/M Code No. 09-946-063-2FP).

S/M Code No. 09-947-063-3FP

ELECTRICAL MAIN PARTS LIST

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

IC

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
	87-002-677-089		IC,TA2002F
	87-017-370-089		IC,MM1038AFF
	87-017-805-089		IC,AN7375NS
	87-001-379-089		IC,TA8122AF
	87-001-151-089		IC,TD6134F1
	87-017-886-019		IC,TC9316F-048
	87-001-145-089		IC,TA8126F
	87-017-643-089		IC,MM1206XFF

TRANSISTOR

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
	87-026-264-089		C-TR,RN1411
	87-026-581-089		C-TR,RN2405
	87-026-261-089		C-TR,RN1404
	89-113-625-089		C-TR,2SA1362GR(TAPG)
	87-026-268-089		C-TR,RN2411
	89-327-143-089		C-TR,2SC2714(O)
	87-026-267-089		C-TR,RN2407
	89-327-125-089		C-TR,2SC2712GR

DIODE

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
	87-001-142-089		C-DIODE,1SS294
	87-020-027-089		C-DIODE,1SS184

MAIN C.B

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
	87-008-543-019		FLTR KIT,10.7M
BPF1	83-HRD-604-019		FLTR,GFWB3-1
C1	87-012-158-089		C-CAP,S 390P-50 CH
C2	87-012-158-089		C-CAP,S 390P-50 CH
C3	87-012-158-089		C-CAP,S 390P-50 CH
C4	87-012-158-089		C-CAP,S 390P-50 CH
C5	87-010-501-04B		CAP,E 47-4 GAS
C6	87-010-501-04B		CAP,E 47-4 GAS
C7	87-010-501-04B		CAP,E 47-4 GAS
C8	87-010-180-089		C-CAP,S 1500P-50 B
C9	87-010-180-089		C-CAP,S 1500P-50 B
C10	87-010-194-089		C-CAP,S 0.047-25 F
C11	87-010-194-089		C-CAP,S 0.047-25 F
C12	87-010-497-04B		CAP,E 4.7-35 GAS
C13	84-439-620-019		CAP,E 470-4
C14	87-010-503-049		CAP,E 220-4 GAS
C15	87-010-452-089		C-CAP,1-16 F
C16	87-010-450-089		C-CAP,0.47-16 F
C17	87-010-196-089		C-CAP,S 0.1-25 F
C18	87-010-196-089		C-CAP,S 0.1-25 F
C25	87-010-452-089		C-CAP,1-16 F
C26	87-010-452-089		C-CAP,1-16 F
C27	87-010-181-089		C-CAP,S 1800P-50 B
C28	87-010-181-089		C-CAP,S 1800P-50 B
C29	87-012-140-089		C-CAP,S 470P-50 CH
C30	87-010-494-049		CAP,E 1-50 GAS
C31	87-010-178-089		C-CAP,S 1000P-50 B
C32	87-010-196-089		C-CAP,S 0.1-25 F
C33	87-010-175-089		C-CAP,S 560P-50 SL
C34	87-010-625-089		CAP,E 1000-4
C35	87-010-196-089		C-CAP,S 0.1-25 F
C36	87-010-452-089		C-CAP,1-16 F
C37	87-010-452-089		C-CAP,1-16 F
C38	87-010-452-089		C-CAP,1-16 F
C39	87-010-501-04B		CAP,E 47-4 GAS
C40	87-010-193-089		C-CAP,S 0.033-25 F
C41	87-010-193-089		C-CAP,S 0.033-25 F
C42	87-010-186-089		C-CAP,S 4700P-50 B
C43	87-010-186-089		C-CAP,S 4700P-50 B
C44	87-010-184-089		C-CAP,S 3300P-50 B
C45	87-010-184-089		C-CAP,S 3300P-50 B
C46	87-010-186-089		C-CAP,S 4700P-50 B
C47	87-010-186-089		C-CAP,S 4700P-50 B
C48	87-010-450-089		C-CAP,0.47-16 F
C49	87-010-450-089		C-CAP,0.47-16 F
C50	87-010-196-089		C-CAP,S 0.1-25 F
C51	87-010-196-089		C-CAP,S 0.1-25 F
C52	87-010-501-04B		CAP,E 47-4 GAS
C54	87-010-498-04B		CAP,E 10-16 GAS
C56	87-010-452-089		C-CAP,1-16 F
C57	87-010-452-089		C-CAP,1-16 F
C101	87-010-196-089		C-CAP,S 0.1-25 F
C102	87-010-175-089		C-CAP,S 560P-50 SL
C103	87-010-195-089		C-CAP,S 0.068-25 F
C104	87-010-152-089		C-CAP,S 8P-50 CH
C105	87-010-321-089		C-CAP,S 82P-50 CH
C106	87-010-197-089		C-CAP,S 0.01-25 B
C107	87-010-197-089		C-CAP,S 0.01-25 B
C108	87-010-316-089		C-CAP,S 33P-50 CH
C109	87-010-147-089		C-CAP,S 3P-50 CH
C110	87-010-318-089		C-CAP,S 47P-50 CH
C111	87-010-145-089		C-CAP,S 1P-50 CH
C112	87-010-175-089		C-CAP,S 560P-50 SL
C113	87-010-822-049		CAP,E 220-4(M5)
C114	87-010-152-089		C-CAP,S 8P-50 CH
C115	87-010-154-089		C-CAP,S 10P-50 CH
C116	87-012-141-089		C-CAP,S 0.22-16 F
C117	87-012-157-089		C-CAP,S 330P-50 CH
C118	87-012-141-089		C-CAP,S 0.22-16 F
C119	87-010-196-089		C-CAP,S 0.1-25 F
C120	87-010-195-089		C-CAP,S 0.068-25 F
C121	87-010-196-089		C-CAP,S 0.1-25 F
C122	87-010-428-089		C-CAP,S 0.015-25 B
C123	87-010-428-089		C-CAP,S 0.015-25 B
C124	87-010-426-089		C-CAP,S 0.012-25 B
C125	87-010-426-089		C-CAP,S 0.012-25 B
C126	87-010-178-089		C-CAP,S 1000P-50 B
C127	87-010-496-04B		CAP,E 3.3-50 GAS
C128	87-010-452-089		C-CAP,1-16 F
C130	87-010-197-089		C-CAP,S 0.01-25 B
C131	87-010-197-089		C-CAP,S 0.01-25 B
C132	87-010-145-089		C-CAP,S 1P-50 CH
C133	87-010-175-089		C-CAP,S 560P-50 SL
C134	87-010-197-089		C-CAP,S 0.01-25 B
C135	87-010-197-089		C-CAP,S 0.01-25 B
C136	87-010-805-089		C-CAP,S 1-16F
C137	87-010-503-049		CAP,E 220-4 GAS
C138	87-010-452-089		C-CAP,1-16 F
C139	87-010-197-089		C-CAP,S 0.01-25 B
C140	87-010-197-089		C-CAP,S 0.01-25 B
C141	87-010-175-089		C-CAP,S 560P-50 SL
C142	87-010-197-089		C-CAP,S 0.01-25 B
C143	87-010-197-089		C-CAP,S 0.01-25 B
C144	87-010-178-089		C-CAP,S 1000P-50 B
C145	87-010-322-089		C-CAP,S 100P-50 CH
C150	87-010-197-089		C-CAP,S 0.01-25 B
C151	87-010-197-089		C-CAP,S 0.01-25 B
C152	87-010-197-089		C-CAP,S 0.01-25 B
C155	87-012-141-089		C-CAP,S 0.22-16 F
CF1	87-008-541-019		FLTR,AGC FMR 450 BL
CF4	87-030-154-019		CERALOCK,CSB456F16
D101	87-026-435-089		C-VARICAP,KV1560
D102	87-026-360-089		C-VARICAP,KV1430
D103	87-026-360-089		C-VARICAP,KV1430
J1	87-099-375-019		JACK,DC 3.8
J2	87-099-459-019		JACK,3.5 ST BLK
L1	87-005-724-089		COIL,3.3UH J SP02
L2	87-005-724-089		COIL,3.3UH J SP02
L3	87-005-724-089		COIL,3.3UH J SP02
L4	87-005-751-019		COIL,TOROIDAL DIA6.5

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
L5	87-005-730-089		COIL,10UH J SP02
L103	84-HRB-607-019		COIL,FM RF
L104	84-HR9-606-019		COIL,OSC FM
L105	87-003-226-089		COIL,100UH
L106	87-008-524-019		IFT,MW
R43	87-022-042-089		C-RES,M M/F 0.51-1/8
S1	87-036-110-019		SW,PUSH SPPB 62
S2	87-036-110-019		SW,PUSH SPPB 62
S3	87-031-816-019		SW,SLIDE 1-1-2
S101	87-031-816-019		SW,SLIDE 1-1-2
SFR1	87-024-050-019		SFR,1K
SFR2	87-024-287-089		C-SFR,5K EVM4
SFR3	87-024-287-089		C-SFR,5K EVM4
TH1	87-026-256-090		THMS,HT-100
VC101	87-011-173-019		TRIMMER,CER 20P
VR1	87-024-641-019		VR,20KAX2

CONTROL C.B

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
C202	87-010-154-089		C-CAP,S 10P-50 CH
C203	87-010-311-089		C-CAP,S 12P-50 CH
C205	87-010-196-089		C-CAP,S 0.1-25 F
C206	87-010-196-089		C-CAP,S 0.1-25 F
C207	87-010-196-089		C-CAP,S 0.1-25 F
C208	87-010-197-089		C-CAP,S 0.01-25 B
C212	87-010-197-089		C-CAP,S 0.01-25 B
C213	87-010-505-089		C-CAP,TN 1-16
C214	87-010-197-089		C-CAP,S 0.01-25 B
C215	87-010-805-089		C-CAP,S 1-16F
C216	87-010-180-089		C-CAP,S 1500P-50 B
C217	87-010-150-089		C-CAP,S 6P-50 CH
C218	87-012-156-089		C-CAP,S 220P-50 CH
C219	87-010-805-089		C-CAP,S 1-16F
C220	87-010-181-089		C-CAP,S 1800P-50 B
C221	87-010-181-089		C-CAP,S 1800P-50 B
C222	87-010-181-089		C-CAP,S 1800P-50 B
C223	87-010-181-089		C-CAP,S 1800P-50 B
C224	87-010-322-089		C-CAP,S 100P-50 CH
C225	87-010-196-089		C-CAP,S 0.1-25 F
C303	87-010-195-089		C-CAP,S 0.068-25 F
C304	87-010-195-089		C-CAP,S 0.068-25 F
C305	87-010-452-089		C-CAP,1-16 F
C306	87-010-452-089		C-CAP,1-16 F
C307	87-010-195-089		C-CAP,S 0.068-25 F
C308	87-010-195-089		C-CAP,S 0.068-25 F
C309	87-010-189-089		C-CAP,S 8200P-50 B
C310	87-010-189-089		C-CAP,S 8200P-50 B
C311	87-010-188-089		C-CAP,S 6800P-50 B
C312	87-010-188-089		C-CAP,S 6800P-50 B
D401	87-017-827-080		C-LED,SEC1201C RED
D402	87-017-829-080		C-LED,SEC1901C ORN
D403	87-017-828-080		C-LED,SEC1401C GRN
L201	87-006-191-089		C-COIL,DD CONV
LCD201	84-HRB-604-019		LCD,HS ASSY[BAND/TU]
X201	87-030-349-019		VIB,XTAL 75K

HEAD FLEX C.B

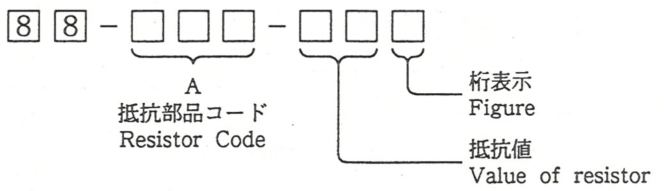
REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
PH1	81-HK6-604-010		HEAD PH ASSY(PH)

FLEX C.B

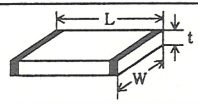
REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
	84-HR9-603-019		RELAY FLEX,CIRCUIT BOARD

○ チップ抵抗部品コード／CHIP RESISTOR PART CODE

チップ抵抗部品コードの成り立ち
Chip Resistor Part Coding

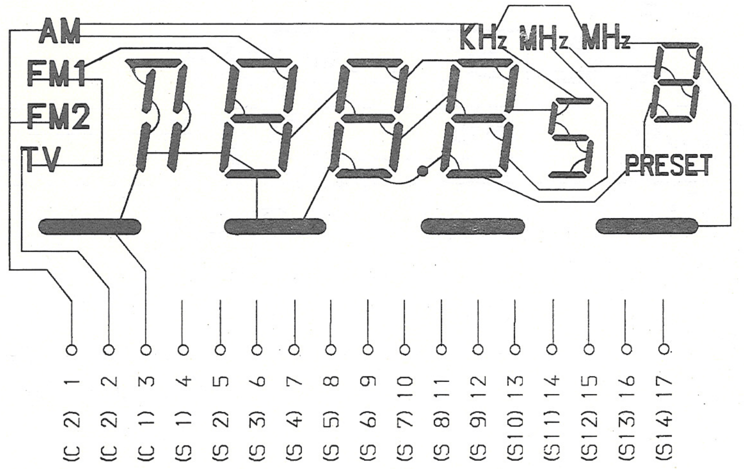

8 8 - □□□ - □□□
A
抵抗部品コード
Resistor Code
桁表示
Figure
抵抗値
Value of resistor

チップ抵抗
Chip resistor

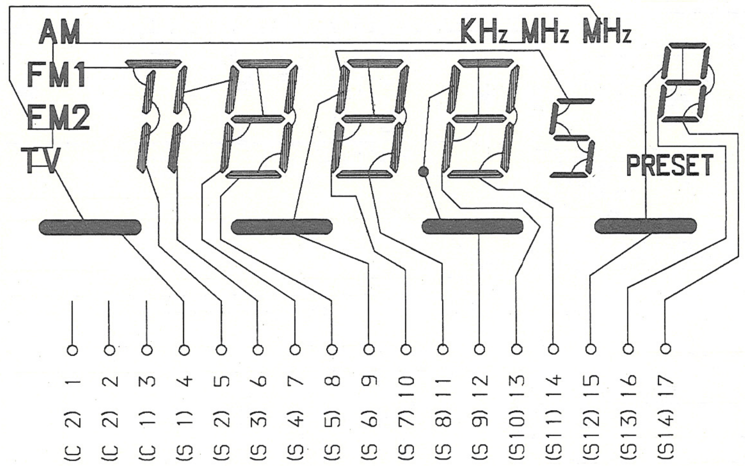
Wattage 容量	Type 種類	Tolerance 許容誤差	Symbol 記号	Dimensions／寸法（mm）				Resistor Code : A 抵抗コード : A
				Form/外形	L	W	t	
1/32W	1608	±5%	CJ		1.6	0.8	0.35	108
1/10W	2125	±5%	CJ		2	1.25	1.45	118
1/8W	3126	±5%	CJ		3.2	1.6	0.5 ~0.7	128

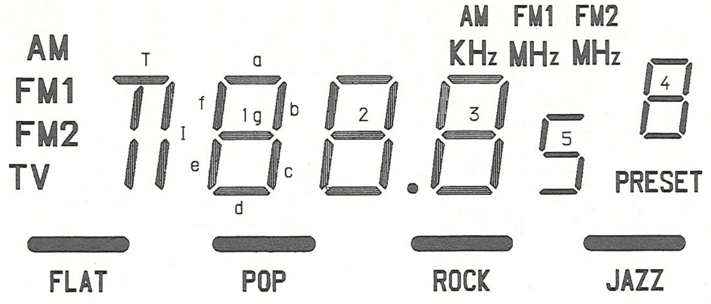
LCD DIAGRAM

COMMON


AM
FM1
FM2
TV
KHz MHz MHz
PRESET
(C 2) 1
(C 2) 2
(C 1) 3
(S 1) 4
(S 2) 5
(S 3) 6
(S 4) 7
(S 5) 8
(S 6) 9
(S 7) 10
(S 8) 11
(S 9) 12
(S10) 13
(S11) 14
(S12) 15
(S13) 16
(S14) 17

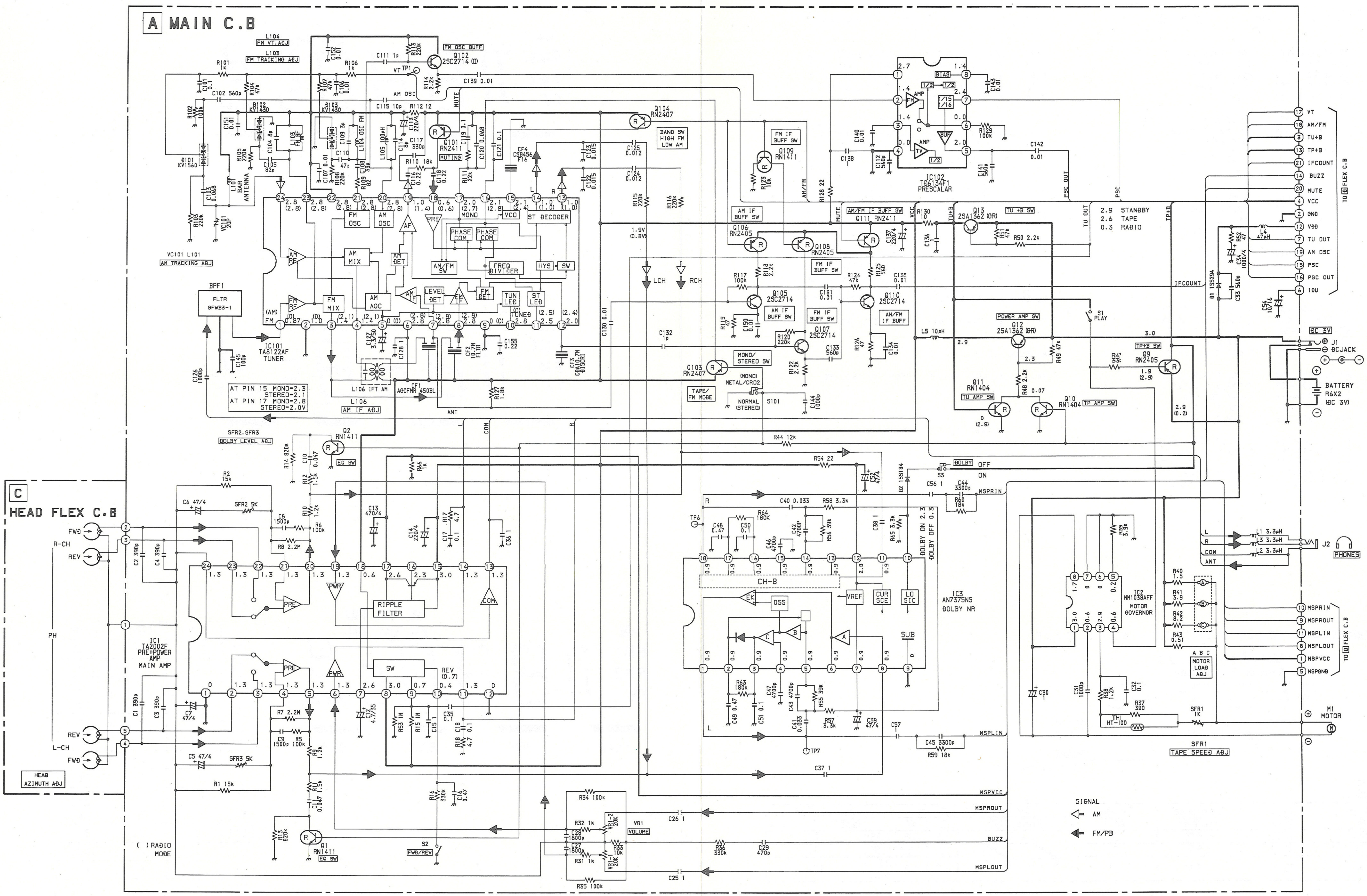
SEGMENT


AM
FM1
FM2
TV
KHz MHz MHz
PRESET
(C 2) 1
(C 2) 2
(C 1) 3
(S 1) 4
(S 2) 5
(S 3) 6
(S 4) 7
(S 5) 8
(S 6) 9
(S 7) 10
(S 8) 11
(S 9) 12
(S10) 13
(S11) 14
(S12) 15
(S13) 16
(S14) 17

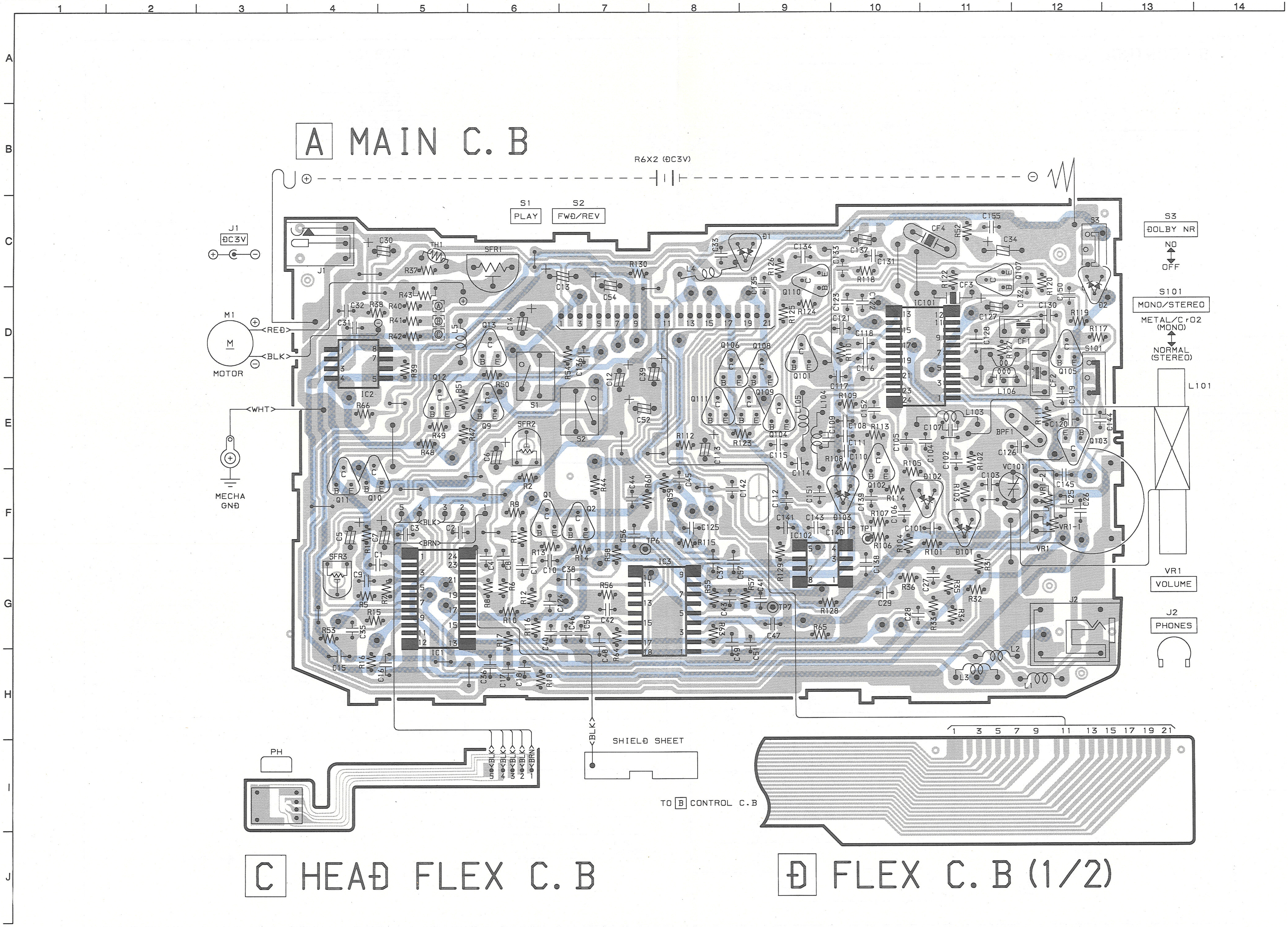

AM FM1 FM2
KHz MHz MHz
AM
FM1
FM2
TV
T
I
a
f
1g
b
e
c
d
2
3
4
5
PRESET
FLAT
POP
ROCK
JAZZ

	COM1	COM2	COM3
S1	FLAT	TV	FM2
S2	T	FM1	AM
S3	I	1f	–
S4	1e	1g	1a
S5	1d	1c	1b
S6	POP	2f	5
S7	2e	2g	2a
S8	2d	2c	2b
S9	●	3f	ROCK
S10	3e	3g	3a
S11	3d	3c	3b
S12	PRESET	4f	JAZZ
S13	4e	4g	4a
S14	4d	4c	4b

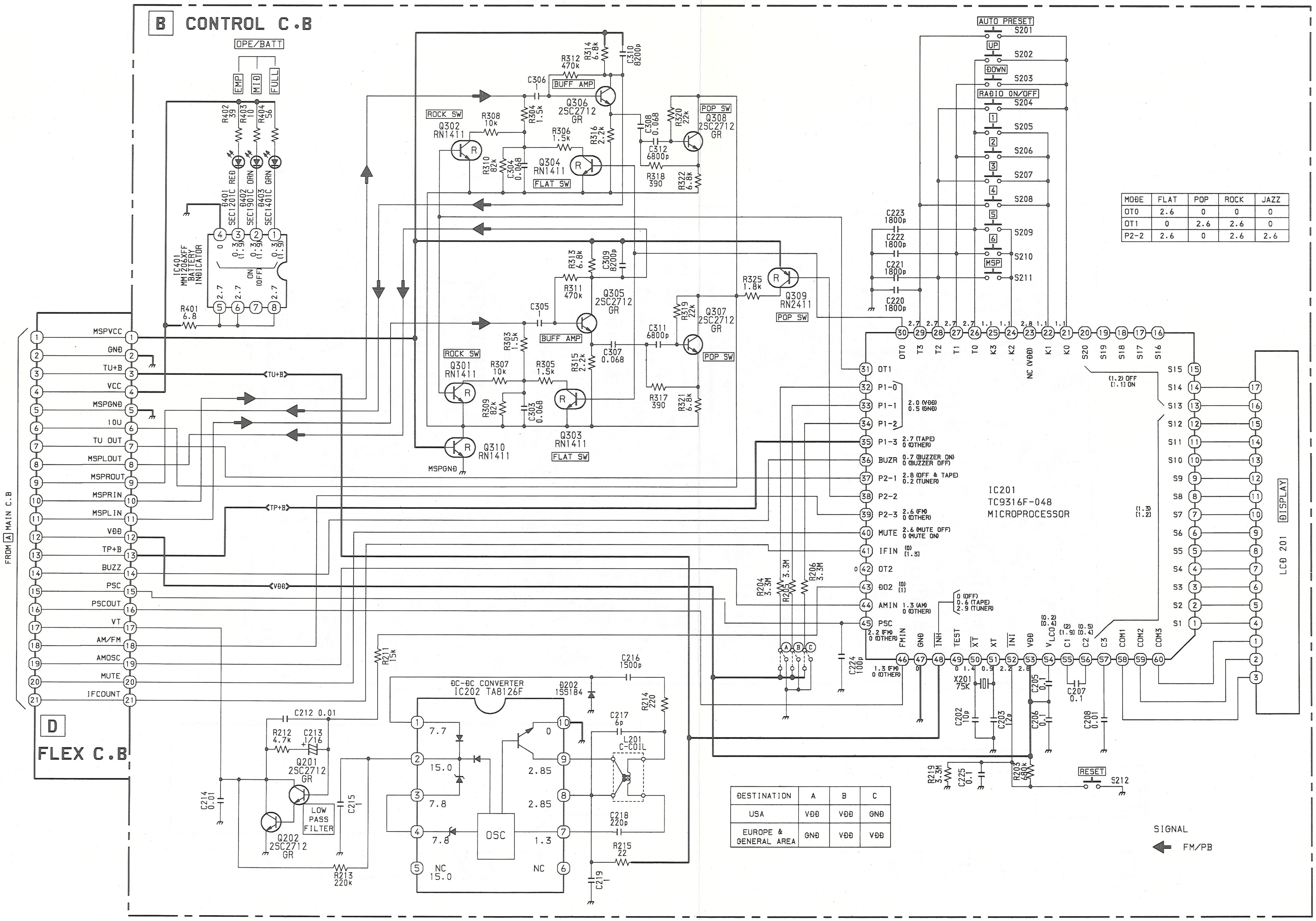
SCHEMATIC DIAGRAM – 1


A MAIN C.B
C HEAD FLEX C.B
L104 FM VT. ADJ
L103 FM TRACKING ADJ
Q102 2SC2714 (O) FM OSC BUFF
Q101 RN2411 MUTING
Q104 RN2407
BAND SW HIGH FM LOW AM
VC101 L101 AM TRACKING ADJ
L101 BAR ANTENNA
BPF1 FLTR GFWB3-1
IC101 TA8122AF TUNER
AT PIN 15 MONO=2.3 STEREO=2.1
AT PIN 17 MONO=2.8 STEREO=2.0V
L106 IFT AM
L106 AM IF ADJ
CF1 450BL
CF2 10.7M FLTR
CF3 CDA10.7M 61SCR1
CF4 CSB456 F16
FM OSC
AM OSC
AM MIX
FM MIX
AM AGC
AM DET
PHASE COM
VCO
ST DECODER
FREQ DIVIDER
HYS SW
LEVEL DET
FM DET
TUN LED
ST LED
AM/FM SW
MONO
Q109 RN1411 FM IF BUFF SW
IC102 TD6134F1 PRESCALAR
BIAS
AMP
TV
SUB
Q106 RN2405 AM IF BUFF SW
Q108 RN2405
Q111 RN2411 AM/FM IF BUFF SW
Q105 2SC2714 AM IF BUFF SW
Q110 2SC2714 AM/FM IF BUFF
Q107 2SC2714 FM IF BUFF SW
Q103 RN2407 MONO/STEREO SW
TAPE/FM MODE
S101 (MONO) METAL/CRO2 NORMAL (STEREO)
Q13 2SA1362 (GR) TU +B SW
Q12 2SA1362 (GR) POWER AMP SW
Q9 RN2405 TP+B SW
Q11 RN1404 TU AMP SW
Q10 RN1404 TP AMP SW
S1 PLAY
2.9 STANDBY
2.6 TAPE
0.3 RADIO
IFCOUNT
TO B FLEX C.B
VT
AM/FM
TU+B
TP+B
IFCOUNT
BUZZ
MUTE
VCC
GND
VDD
TU OUT
AM OSC
PSC
PSC OUT
10U
DC 3V
J1 DCJACK
BATTERY R6X2 (DC 3V)
SFR2, SFR3 DOLBY LEVEL ADJ
Q2 RN1411 EQ SW
IC1 TA2002F PRE+POWER AMP MAIN AMP
PRE
PWR
RIPPLE FILTER
COM
SW
REV (0.7)
FWD
REV
R-CH
L-CH
PH
HEAD AZIMUTH ADJ
( ) RADIO MODE
Q1 RN1411 EQ SW
S2 FWD/REV
VR1 VOLUME
IC3 AN7375NS DOLBY NR
CH-B
OSS
VREF
CUR SCE
LO SIC
SUB
S3 DOLBY OFF ON
DOLBY ON 2.3
DOLBY OFF 0.3
TP6
TP7
MSPRIN
MSPLIN
MSPVCC
MSPROUT
BUZZ
MSPLOUT
IC2 MM1038AFF MOTOR GOVERNOR
MOTOR LOAD ADJ
J2 PHONES
L1 3.3μH
L2 3.3μH
L3 3.3μH
TO B FLEX C.B
MSPRIN
MSPROUT
MSPLIN
MSPLOUT
MSPVCC
MSPGND
M1 MOTOR
SFR1 TAPE SPEED ADJ
TH1 HT-100
SIGNAL
AM
FM/PB

WIRING – 1

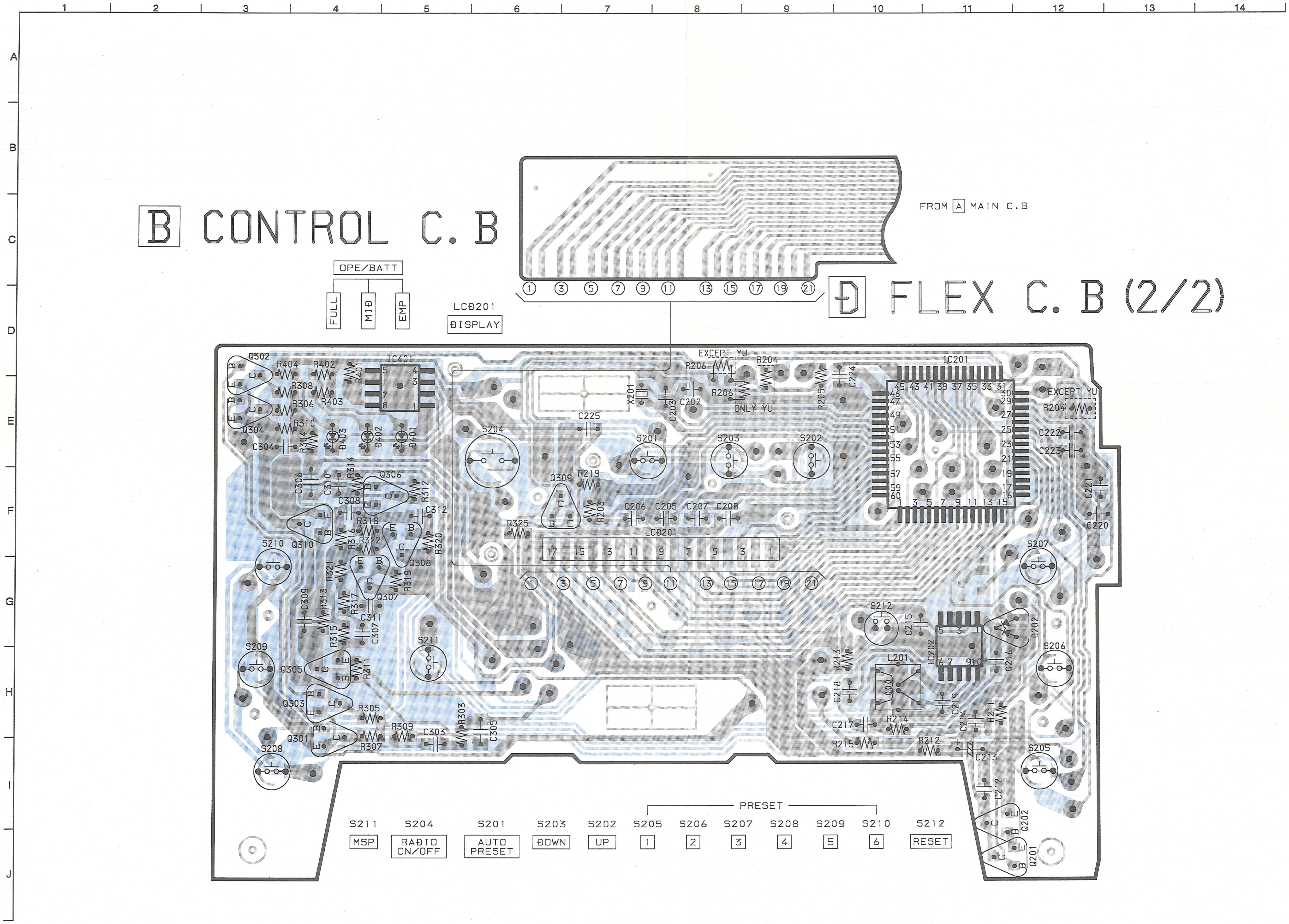

1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B
C
D
E
F
G
H
I
J
A MAIN C.B
R6X2 (DC3V)
S1
PLAY
S2
FWD/REV
J1
DC3V
M1
MOTOR
<RED>
<BLK>
<WHT>
MECHA GND
S3
DOLBY NR
NO
OFF
S101
MONO/STEREO
METAL/CrO2 (MONO)
NORMAL (STEREO)
L101
VR1
VOLUME
J2
PHONES
IC1
IC2
IC3
IC101
IC102
SFR1
SFR2
SFR3
TH1
CF1
CF2
CF3
CF4
BPF1
VC101
L1
L2
L3
L4
L103
L104
L105
L106
TP1
TP6
TP7
<BLK>
<BRN>
SHIELD SHEET
PH
<BLK> 5
<BLK> 4
<BLK> 3
<BLK> 2
<BRN> 1
TO B CONTROL C.B
1 3 5 7 9 11 13 15 17 19 21
C HEAD FLEX C.B
D FLEX C.B (1/2)

SCHEMATIC DIAGRAM – 2


B CONTROL C.B
OPE/BATT
EMP
MID
FULL
IC401 MM1205XFF BATTERY INDICATOR
D401 SEC1201C RED
D402 SEC1901C ORN
D403 SEC1401C GRN
R401 6.8
R402 39
R403 10
R404 56
ROCK SW
Q302 RN1411
Q301 RN1411
FLAT SW
Q304 RN1411
Q303 RN1411
BUFF AMP
Q306 2SC2712 GR
Q305 2SC2712 GR
POP SW
Q308 2SC2712 GR
Q307 2SC2712 GR
Q309 RN2411
Q310 RN1411
MSPGND
IC201 TC9316F-048 MICROPROCESSOR
AUTO PRESET S201
UP S202
DOWN S203
RADIO ON/OFF S204
S205
S206
S207
S208
S209
S210
MSP S211
RESET S212
LCD 201 DISPLAY
DC-DC CONVERTER IC202 TA8126F
OSC
D202 1SS184
L201 C-COIL
Q201 2SC2712 GR
Q202 2SC2712 GR
LOW PASS FILTER
X201 75K
FROM A MAIN C.B
D FLEX C.B
MSPVCC
GND
TU+B
VCC
MSPGND
IOU
TU OUT
MSPLOUT
MSPROUT
MSPRIN
MSPLIN
VDD
TP+B
BUZZ
PSC
PSCOUT
VT
AM/FM
AMOSC
MUTE
IFCOUNT
OT1
P1-0
P1-1
P1-2
P1-3
BUZR
P2-1
P2-2
P2-3
MUTE
IFIN
OT2
DO2
AMIN
PSC
SIGNAL
FM/PB

MODE	FLAT	POP	ROCK	JAZZ
OT0	2.6	0	0	0
OT1	0	2.6	2.6	0
P2-2	2.6	0	2.6	2.6

DESTINATION	A	B	C
USA	VDD	VDD	GND
EUROPE & GENERAL AREA	GND	VDD	VDD


1
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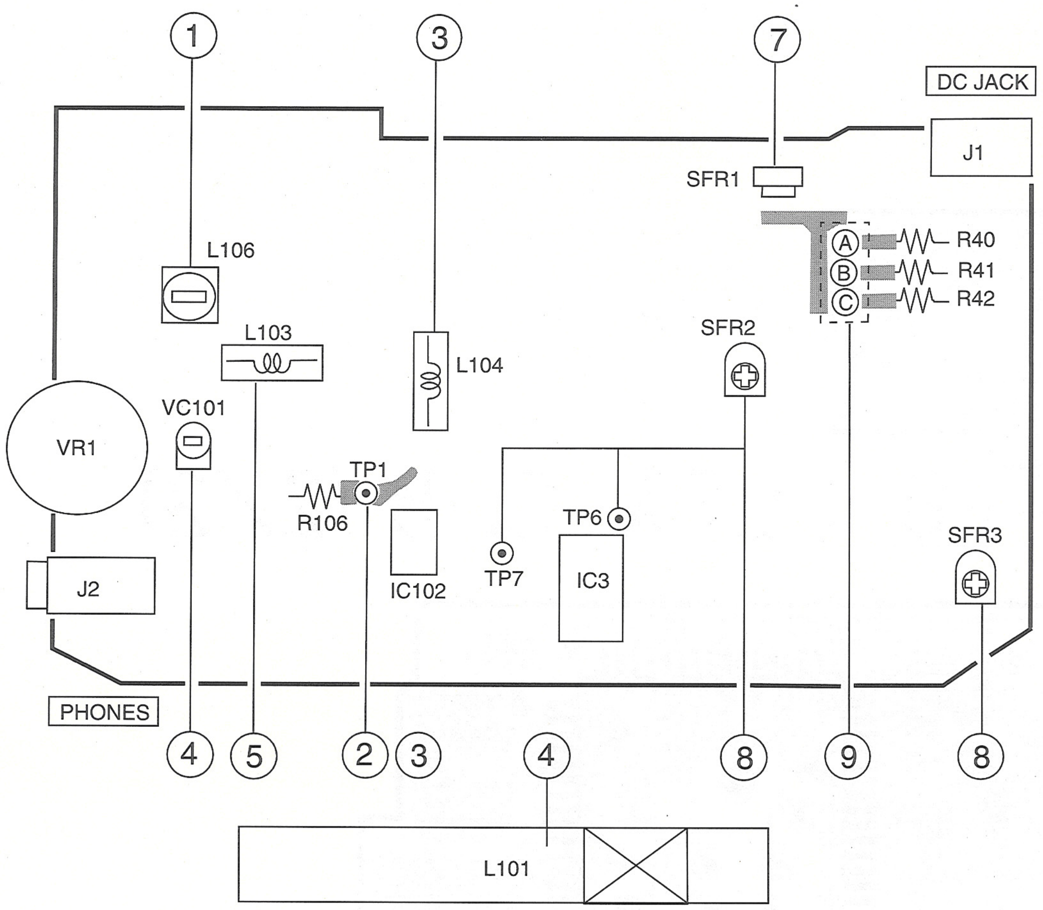
A
B
C
D
E
F
G
H
I
J
B CONTROL C.B
D FLEX C.B (2/2)
FROM A MAIN C.B
OPE/BATT
FULL
MID
EMP
LCD201
DISPLAY
IC401
IC201
IC202
LCD201
X201
L201
EXCEPT YU
ONLY YU
Q201
Q202
Q301
Q302
Q303
Q304
Q305
Q306
Q307
Q308
Q309
Q310
D401
D402
D403
R203
R204
R205
R206
R211
R212
R213
R214
R215
R219
R301
R303
R304
R305
R306
R307
R308
R309
R310
R311
R312
R313
R314
R315
R316
R317
R318
R319
R320
R321
R322
R325
R401
R402
R403
R404
C202
C203
C205
C206
C207
C208
C212
C213
C214
C215
C216
C217
C218
C219
C220
C221
C222
C223
C224
C225
C303
C304
C305
C306
C307
C308
C309
C310
C311
C312
S201
S202
S203
S204
S205
S206
S207
S208
S209
S210
S211
S212
PRESET
S211 MSP
S204 RADIO ON/OFF
S201 AUTO PRESET
S203 DOWN
S202 UP
S205 1
S206 2
S207 3
S208 4
S209 5
S210 6
S212 RESET

ADJUSTMENT

A MAIN C.B



<RADIO SECTION>

1. AM IF Adjustment
   L106 .... 450kHz

2. AM VT Check
   Settings: •Test point: TP1
   Method: Set to AM 522kHz and TP1, check the voltage for 0.8V.
   10V or less at AM 1710kHz.

3. FM VT Adjustment
   Settings: •Test point: TP1
   •Adjustment location: L104
   Method: Set to FM 76MHz and adjust L104 so that the test point becames 1.0V ± 0.1V.

4. AM Tracking Adjustment
   L101 .... 630kHz
   VC101 .... 1440kHz

5. FM Tracking Adjustment
   L103 .... 87.5MHz

<TAPE PLAYER SECTION>

6. Azimuth Adjustment
   Settings: •Test tape: TTA-320 (TTA-113B, TTC-152)
   •Test point: PHONES JACK
   •Adjustment location: Azimuth adjustment screw
   Method: Play back the 8kHz signal of the test tape and adjust so that the output becames maximum.

7. Tape Speed Adjustment.
   Settings: •Test tape: TTA-100 (TTA-111S)
   •Test point: PHONES JACK
   •Adjustment location: SFR1
   Method: Play back the test tape and adjust for 3000Hz ± 15Hz.

8. Dolby Level Adjustment
   Settings: •Test tape: TTA-200
   •Test point: TP6 (Rch), TP7 (Lch)
   •Adjustment location: SFR3 (Lch)
   SFR2 (Rch)
   •DOLBY SW: OFF
   •TAPE SELECTOR: NORM
   •DIRECTION: FWD
   •VOLUME: MIN "0"
   •SUPER BASS MIN
   Method: Connect at electrolytic capacitor (10µF / 16V) to measured equipment and TP6 (7), check the voltage for 100mV–0.5dB ~ 100mV+1.5dB.

9. Motor Load Adjustment

   Perform the STOP → PLAY and REVERSE operations (or PAUSE ON → OFF) after the motor is replaced. When the tape starts running smooth, this adjustment is not necessary. If wow is conspicuous at the begining of the tape-run, perform this adjustment following the procedure below.

   1) Solder only medium resistor pattern (B) of the MOTOR AND GOVERNOR MATCHING ADJ. resistor group.
   2) Set the tape speed (using speed adjustment SFR).
   3) Restrict the motor rotation by hand (or turn PAUSE ON).
   4) Remove your hand and listen to the begining of the tape-run.
   5) When the rise of tape running is smooth, no more adjustment is necessary.
   If wow continues for 1 to 2 seconds at the rise time, reduce the combined resistance according to procedure 6 and check that the tape starts running smooth.
   6) Solder the resistor pattern according to the tabel below.

Pattern	(Procedure 1 above)	Step(1)	Step(2)	Step(3)
High resistance(C)	Open	Open	Solder	Open
Medium resistance(B)	Solder	Open	Open	Solder
Low resistance(A)	Open	Solder	Solder	Solder

   7) Finally re-check the tape speed.
   Caution: Cool the patterns down to normal temperature after soldering. If the pattern remains heated, the governor circuit does not operate normally.

PRACTICAL SERVICE FIGURE

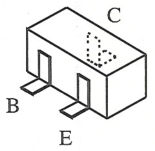
<RADIO SECTION>

Sensitivity: (IHF, THD 3%)	FM Less than 23dB (90.0MHz) Less than 23dB (90.1MHz) (YU only)
(S/N 10dB)	AM Less than 59dB (999kHz) Less than 59dB (1000kHz) (YU only)
Intermediate frequency:	FM 10.7MHz ± 0.05MHz AM 450kHz ± 3kHz
FM stereo separation:	FM More than 20dB (90.0MHz) More than 20dB (90.1MHz) (YU only)

<TAPE PLAYER SECTION>

Tape speed:	3000Hz ± 90Hz
Wow & flutter: (RMS)	Less than 0.5%
Pinch roller pressure:	125 ~ 160g
Take-up torque:	23 ~ 45g-cm (FWD, REV)
F.F torque:	More than 90g-cm
Rew torque:	More than 90g-cm
Back tension:	2 ~ 5g-cm (FWD) 1.5 ~ 3g-cm (REV)
S/N ratio:	More than 43dB (DC)
Distortion:	Less than 3.0% (DC)
Noise level:	Less than 7.0mV (Vol MAX, DC)
Frequency response:	63Hz ± 3dB ~ 8kHz ± 3dB (NORMAL) 63Hz ± 3dB ~ 10kHz ± 3dB (CrO2, METAL)

TRANSISTORS ILLUSTRATION

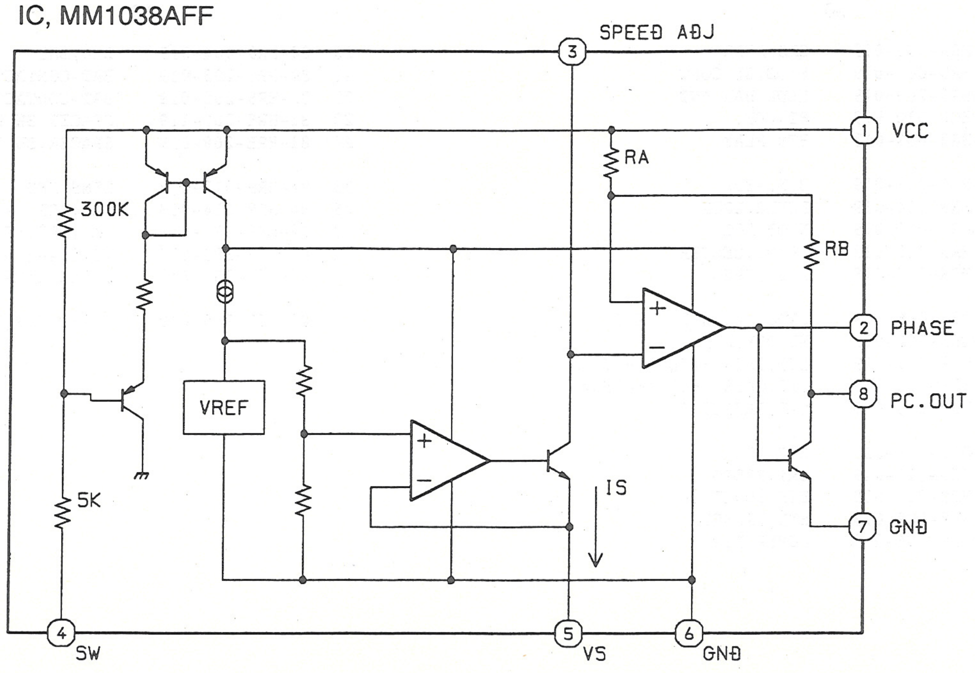


RN1404
RN1411
RN2405
RN2407
RN2411

2SA1362
2SC2712
2SC2714

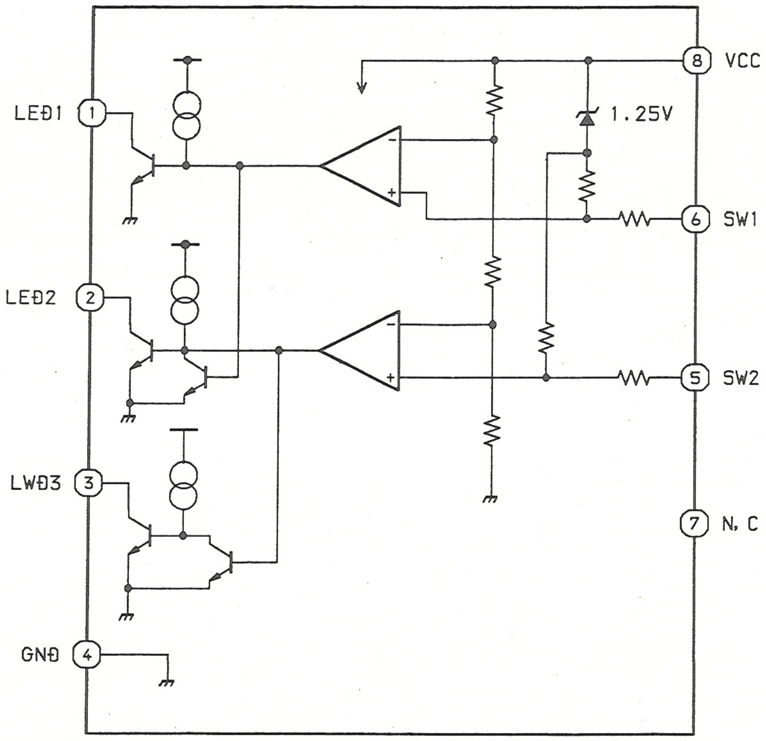
IC BLOCK DIAGRAM

IC, MM1038AFF



SPEED ADJ
3
1 VCC
RA
RB
300K
2 PHASE
8 PC.OUT
VREF
IS
5K
7 GND
4 SW
5 VS
6 GND

IC, MM1206XFF



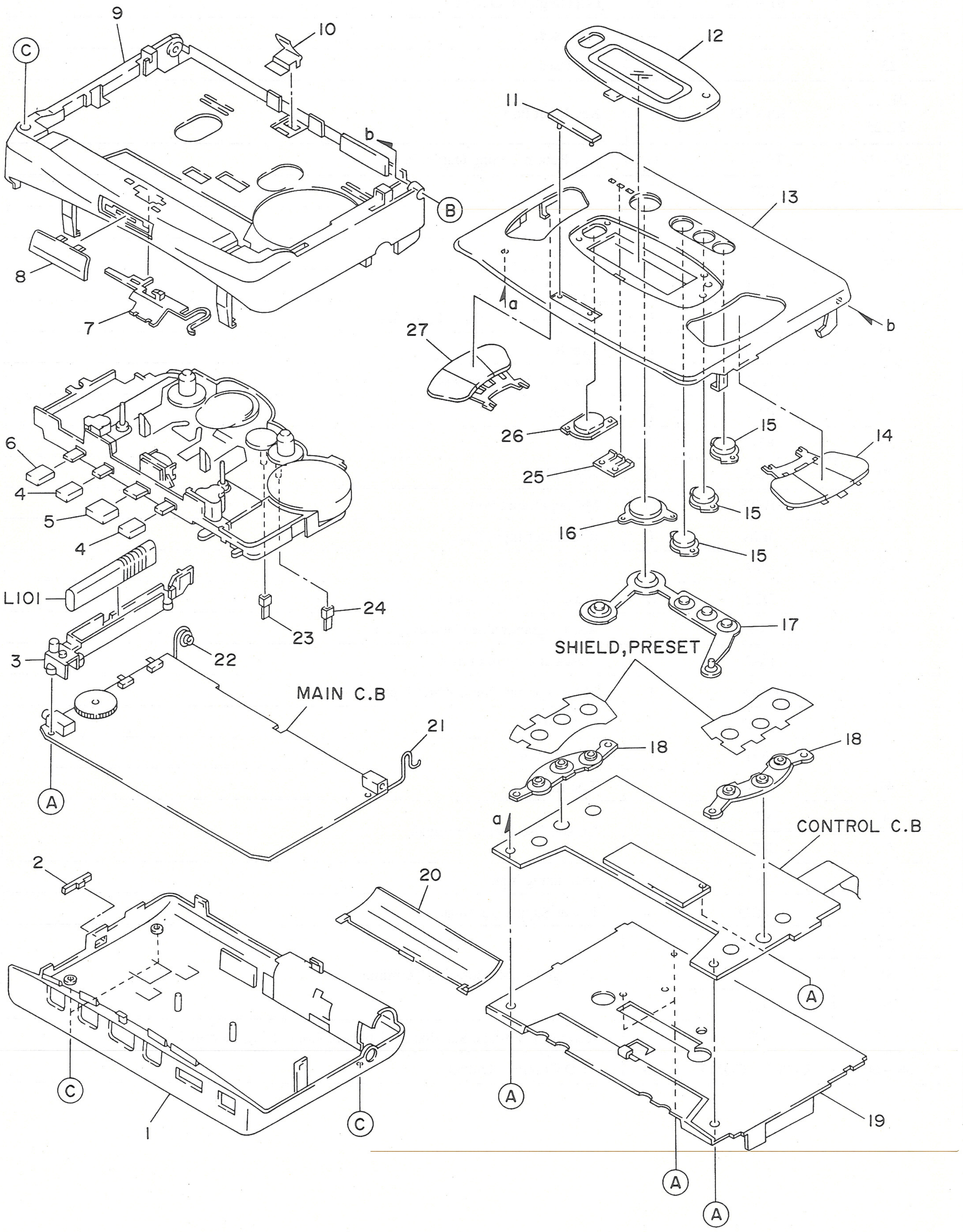
8 VCC
LED1 1
1.25V
6 SW1
LED2 2
5 SW2
LWD3 3
7 N, C
GND 4

IC DESCRIPTION

IC, TC9316F – 048

Pin No.	Pin Name	I/O	Description
1 ~ 14	S1 ~ S14	O	LCD Segment Output.
15 ~ 20	–	–	Not Used.
23	–	–	Not Used.
21, 22 24, 25	K0 ~ K3	I	Key Input Port.
26 ~ 29	T0 ~ T3	O	Key Return Timing Output Port.
30	OT0	O	Flat.
31	OT1	O	Rock.
32	P1-0	I	AM Step.
33	P1-1	I	Japan / Export
34	P1-2	I	USA / Europe & Other Countries.
35	P1-3	I	Stop In.
36	BUZR	O	Buzzer Pulse Output Port.
37	P2-1	O	TU Out.
38	P2-2	O	Pop.
39	P2-3	O	AM / FM.
40	MUTE	O	Muting Output Port.
41	IFIN	I	IF Counter Input Port.
42	OT2	O	TV Out.
43	DO2	O	Phase Comparator Output.
44	AMIN	I	AM Programmable Counter Input.
45	PSC	O	Prescaler control output.
46	FMIN	I	FM Programmable Counter Input.
47	GND	–	IC Ground.
48	$\overline{\text{INH}}$	I	Inhibit Input.
49	TEST	I	Test Input.
50	$\overline{\text{XT}}$	–	Crystal Oscillation terminal.
51	XT		
52	$\overline{\text{INI}}$	I	Initializing input.
53	VDD	–	Power Supply Terminal.
54	VLCD	–	Voltage Double Boosting Terminal.
55	C1		
56	C2		
57	C3	–	Reference Voltage Stabilizing Capacitor Connecting Terminal.
58 ~ 60	COM1 ~ COM3	O	LCD Common Output.

MECHANICAL EXPLODED VIEW 1/1

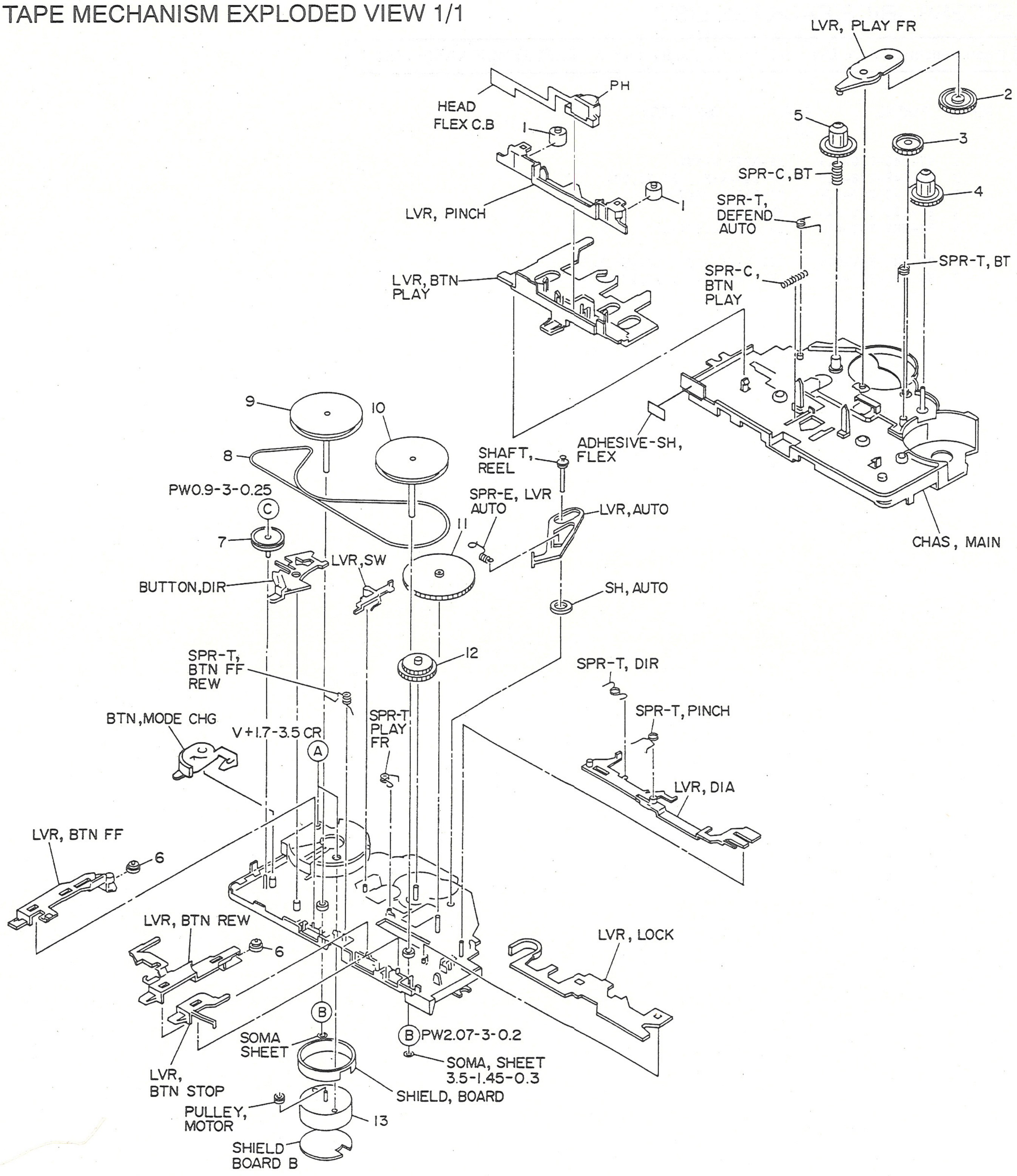

9
10
12
11
13
b
C
B
8
7
a
27
6
4
5
4
L101
3
22
23
24
26
25
15
14
16
15
15
17
SHIELD,PRESET
MAIN C.B
21
18
18
A
a
CONTROL C.B
2
20
A
C
C
1
A
19
A
A

MECHANICAL PARTS LIST 1/1

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	84-HR9-003-019		CAB,REAR
2	84-HR9-007-019		KNOB,SL CONT
3	84-HR9-201-019		HLDR,BAR ANT
4	84-HG8-010-019		BTN,FF
5	84-HG8-009-019		BTN,PLAY
6	84-HG8-011-019		BTN,STOP
7	84-HR9-204-019		LEVER,LOCK
8	84-HR9-008-019		KNOB,LOCK
9	84-HR9-002-019		FRAME,CENTER
10	81-HRK-202-019		P-SP,CASS
11	87-054-085-019		BADGE AIWA 22.5MLD
12	84-HR9-005-019		WINDOW,LCD
13	84-HR9-001-019		LID,CASS<EXCEPT 647YU>
13	84-HR9-018-019		LID,CASS (647)<647YU>
14	84-HR9-013-019		CAP,PRESET R
15	84-HR9-016-019		CAP,TUN
16	84-HR9-015-019		CAP,RADIO
17	84-HR9-011-019		BTN,FUNCTION
18	84-HR9-009-019		BTN,PRESET
19	84-HR9-006-019		COVER,PCB
20	84-HR9-004-019		LID,BAT
21	82-HR9-203-019		BAT-CONTACT[+]
22	82-HR9-206-019		BAT-CONTACT[-]
23	81-HRE-209-119		SPACER,SW B
24	81-HRE-208-019		SPACER,SW A
25	84-HR9-017-019		LENS,LED
26	84-HR9-014-019		CAP,MSP
27	84-HR9-012-019		CAP,PRESET L
A	87-067-384-019		VT+1.4-3.5(HL)
B	87-067-756-019		SCREW HINGE 1.4-4HL
C	87-067-769-019		VT2+1.7-8(3) BLK

TAPE MECHANISM EXPLODED VIEW 1/1



LVR, PLAY FR
PH
HEAD FLEX C.B
1
2
5
3
SPR-C, BT
4
SPR-T, DEFEND AUTO
LVR, PINCH
1
LVR, BTN PLAY
SPR-C, BTN PLAY
SPR-T, BT
9
10
ADHESIVE-SH, FLEX
8
SHAFT, REEL
PW0.9-3-0.25
SPR-E, LVR AUTO
LVR, AUTO
C
11
7
LVR,SW
BUTTON,DIR
CHAS, MAIN
SH, AUTO
12
SPR-T, BTN FF REW
SPR-T, DIR
BTN,MODE CHG
V+1.7-3.5 CR
SPR-T PLAY FR
SPR-T, PINCH
A
LVR, DIA
LVR, BTN FF
6
LVR, BTN REW
6
LVR, LOCK
B
SOMA SHEET
B PW2.07-3-0.2
SOMA, SHEET 3.5-1.45-0.3
LVR, BTN STOP
SHIELD, BOARD
PULLEY, MOTOR
13
SHIELD BOARD B

TAPE MECHANISM PARTS LIST 1/1

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1~13	M8-0ZM-291-010		OZM-2N
1	80-ZM2-228-010		PINCH ROLLER ASSY
2	80-ZM2-224-010		GEAR,PLAY FR
3	80-ZM2-225-010		GEAR,MIRROR
4	80-ZM2-222-010		REEL TABLE,F
5	80-ZM2-223-010		REEL TABLE,R
6	80-ZM2-256-110		GEAR,FF REW
7	80-ZM2-231-010		PULLEY,BELT
8	80-ZM2-240-010		BELT,SQ 0.75-244
9	80-ZM2-262-010		FLY-WHL ASSY,FM
10	80-ZM2-216-010		FLY-WHL ASSY,R
11	80-ZM2-227-110		GEAR,AUTO
12	80-ZM2-218-010		GEAR ASSY,SLIP
13	87-045-300-019		MOTOR(BDH3B)(M1)

ACCESSORIES/PACKAGE LIST

If can't understand for Description please kindly refer to " REFERENCE NAME LIST ".

REF. NO.	PART NO.	KANRI NO.	DESCRIPTION
1	87-048-230-019		HP-A270 A<YU>
2	87-048-278-019		HP-24NA<YK1,YZ1,Y1,YJ1>
3	87-048-292-019		HP-A270AG<647YU>
4	87-080-045-019		HLDR,BELT
5	84-HR9-901-019		IB, YU<YU,647YU>
6	84-HR9-902-019		IB, Y(ESC)<YK1,YZ1,Y1,YJ1>
7	84-HR9-903-019		IB, Y(GFI)<YZ1,Y1,YJ1>

REFERENCE NAME LIST

ELECTRICAL SECTION

DESCRIPTION	REFERENCE NAME
ANT	ANTENNAS
C-	CHIP
C-CAP	CAP, CHIP
C-CAP TN	CAP, CHIP TANTALUM
C-COIL	COIL, CHIP
C-DI	DIODE, CHIP
C-DIODE	DIODE, CHIP
C-FET	FET, CHIP
C-FOTR	FILTER, CHIP
C-JACK	JACK, CHIP
C-LED	LED, CHIP
C-RES	RES, CHIP
C-SFR	SFR, CHIP
C-SLIDE SW	SLIDE SWITCH, CHIP
C-SW	SWITCH, CHIP
C-TR	TRANSISTOR, CHIP
C-VR	VOLUME, CHIP
C-ZENER	ZENER, CHIP
CAP, CER	CAP, CERA-SOL
CAP, E	CAP, ELECT
CAP, M/F	CAP, FILM
CAP, TC	CAP, CERA-SOL
CAP, TC-U	CAP, CERA-SOL SS
CAP, TN	CAP, TANTALUM
CERA FIL	FILTER, CERAMIC
CF	FILTER, CERAMIC
DL	DELAY LINE
E/CAP	CAP, ELECT
FILT	FILTER
FLTR	FILTER
FUSE RES	RES, FUSE
MOT	MOTOR
P-DIODE	PHOTO DIODE
P-SNSR	PHOTO SENSER
P-TR	PHOTO TRANSISTOR
POLY VARI	VARIABLE CAPACITOR
PPCAP	CAP, PP
PT	POWER TRANSFORMER
PTR, RES	PTR, MELF
RC	REMOTE CONTROLLER
RES NF	RES, NON-FLAMMABLE
RESO	RESONATOR
SHLD	SHIELD
SOL	SOLENOID
SPKR	SPEAKER
SW, LVR	SWITCH, LEVER
SW, RTRY	SWITCH, ROTARY
SW, SL	SWITCH, SLIDE
TC CAP	CAP, SERA-SOL
THMS	THERMISTOR
TR	TRANSISTOR
TRIMMER	CAP, TRIMMER
TUN-CAP	VARIABLE CAPACITOR
VIB, CER	RESONATOR, CERAMIC
VIB, XTAL	RESONATOR, CRYSTAL
VR	VOLUME
ZENER	DIODE, ZENER

MECHANICAL SECTION

DESCRIPTION	REFERENCE NAME
ADHESHIVE	SHEET ADHESHIVE
AZ	AZIMUTH
BAR-ANT	BAR-ANTENNA
BAT	BATTERY
BATT	BATTERY
BRG	BEARING
BTN	BUTTON
CAB	CABINET
CASS	CASSETTE
CHAS	CHASSIS
CLR	COLLAR
CONT	CONTROL
CRSR	CURSOR
CU	CUSHION
CUSH	CUSHION
DIR	DIRECTION
DUBB	DUBBING
FL	FRONT LOADING
FLY-WHL	FLYWHEEL
FR	FRONT
FUN	FUNCTION
G-CU	G-CUSHION
HDL	HANDOL
HIMERON	CLOTH
HINGE, BAT	HINGE, BATTERY
HLDR	HOLDER
HT-SINK	HEAT SINK
IB	INSTRUCTION BOOKLET
IDLE	IDLER
IND, L-R	INDICATOR, L-R
KEY, CONT	KEY, CONTROL
KEY, PRGM	KEY, PROGRAM
KNOB, SL	KNOB, SLIDE
LBL	LABEL
LID, BATT	LID, BATTERY
LID, CASS	LID, CASSETTE
LVR	LEVER
P-SP	P-SPRING
PANEL, CONT	PANEL, CONTROL
PANEL, FR	PANEL, FRONT
PRGM	PROGRAM
PULLY, LOAD MO	PULLY, LOAD MOTOR
RBN	RIBBON
S-	SPECIAL
SEG	SEGMENT
SH	SHEET
SHLD-SH	SHIELD-SHEET
SL	SLIDE
SP	SPRING
SP-SCREW	SPECIAL-SCREW
SPACER, BAT	SPACER, BATTERY
SPR	SPRING
SPR-P	P-SPRING
SPR-PC-PUSH	P-SPRING, C-PUSH
T-SP	T-SPRING
TERM	TERMINAL
TRIG	TRIGGER
TUN	TUNING
VOL	VOLUME
W	WASHER
WHL	WHEEL
WORM-WHL	WORM-WHEEL

サービス技術ニュース	
番号	連絡内容
G－　　－	
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